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State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

June 1, 2016

Rusty Bastian
Redmond Minerals, Inc.
6005 North 100 West
Redmond, Utah 84652

Subject: Review of Amended Notice of Intention to Commence Large Mining Operations, Redmond Minerals Inc., Redmond Minerals Mine, M/039/0002, Sanpete County, Utah

Dear Mr. Bastian:

The Division of Oil, Gas and Mining has reviewed the amended Notice of Intention to Commence Large Mining Operations (Notice) which was received April 25, 2016. The attached comments will need to be addressed before the Division issues final approval of the amended Notice. Considering past occurrences of mine workings subsidence which is understood to be associated with alluvial groundwater flow, please carefully address the comments relating to subsidence and groundwater impacts.

Thank you for your clean copy submittal addressing most of the comments associated with the text portions of the Notice, as discussed over the phone on May 13, 2016. The Division will soon review this submittal.

Please submit your response to the attached reclamation surety comments by July 28, 2016.

Considering the incomplete but valuable maps that have been provided, the Division has decided that final map changes will not be required until either:

- 1) You need to amend the Notice to incorporate plans that are not already included in the Notice,

OR

- 2) The next periodic plan and reclamation cost estimate review (2019).

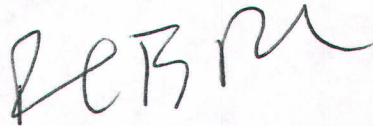
The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Upon final approval, the Notice will be stamped approved, and a copy will be returned for your records.



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The Division will suspend further review of the Notice until receiving your response to this letter. If you have any questions in this regard please contact Peter Brinton at 801-538-5258 or me at 801-538-5261. Thank you for your cooperation in completing this permitting action.

Sincerely,

A handwritten signature in dark ink, appearing to read 'P. B. Baker', with a stylized flourish at the end.

Paul B. Baker
Minerals Program Manager

PBB: pnb: eb
Attachment: Review
cc: Mike Forbush, Redmond Minerals Inc.; mikef@redmondminerals.com
Scott Olsen, Sanpete County; solsen@sanpetecounty-ut.gov
P:\GROUPS\MINERALS\WP\M039-Sanpete\M0390002-SouthRcsSalt\final\REV4-7327-05242016.docx

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**FOURTH REVIEW OF NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS
Redmond Minerals Inc.
Redmond Minerals Mine
M/039/0002
May 24, 2016**

General Comments:

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
1	General	The submittal should be formatted to easily incorporate additional revisions and amendments. (No specific response needed.)		
2	General	The Division may have additional comments based on the responses to this review. (No specific response needed.)		
3	Signature	The re-written Notice will need to be signed by an authorized officer once complete.	pnb	

R647-4-106 - Operation Plan

106.8 - Depth to groundwater, extent of overburden, geologic setting

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
4	Page 12, Omission	<p><u>Previous Comment 15:</u> Discuss the depth to groundwater and groundwater elevation in the area of mining, and the presence of water in underground workings.</p> <p><u>Previous Comment 11:</u> Partially addressed. Please distinguish which mine's "underground workings are almost completely dry...", and which are wet or flooded. Update the discussion to represent current conditions, which are apparently different from what they were in 2011.</p> <p><u>New Comment</u> - Clarify that the workings are dry with the exception of a few areas where inflows of brine are stored. Describe the inflows (rates, quality/saturation), areas of the inflows, and the suspected sources of the brine (e.g. alluvial flow from the east, shaft development, etc).</p>	pnb	
5	Page 13	<p><u>Previous Comment 18:</u> Include a description of the structural geology setting</p> <p><u>Previous Comment 12:</u> USGS Map I-1304-A has a wealth of useful geologic data relating to the mine area. In addition, a chart that has the geologic characteristics of the units should be reviewed by the operator. The Division recommends that the text of the Notice refer to the published map.</p> <p><u>New Comment</u> – Please add the outline of large mine operation on the map and label the outline.</p>	lah lah lah	

R647-4-109 - Impact Assessment

109.1 - Projected impacts to surface & groundwater systems

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
6	Page 14, para 3	<p><u>Previous Comment 81:</u> It appears that the quality of the alluvial groundwater is being impacted by mining activities, at least in the area of the Bosshardt mine (near the salt processing facilities)... Groundwater flowing through the French drain, and ponded mine water (brine) flowing across the diapir salt to the alluvial or sedimentary deposits east of the mine... is likely to be significantly more saline...</p> <p>Discuss the following:</p> <ul style="list-style-type: none"> - Groundwater impacts associated with increased salinity. - The impact potential on down-gradient water resources... - The likelihood of future (and any past) impacts from salty water on adjacent farm lands during mining and after mine reclamation. - Any past, ongoing, and proposed mitigation efforts to avoid or minimize impacts, such as alluvial water diversion and the pumping of brackish water from the French drain (include current and future flow rates and frequencies). - Reclamation activities related to mitigating long-term impacts. What actions are planned so that any need for pumping after reclamation is avoided? <p><u>Previous Comment 23:</u> Not addressed. Provide more specific discussion of projected impacts based on technical reports...</p> <p><u>Previous Comment 14:</u> Not fully addressed. Discuss the following:</p> <ul style="list-style-type: none"> • The extent of general projected impacts (during mining and after reclamation) on groundwater quality due to mine-impacted (NaCl-saturated or partially saturated) groundwater flow from both underground workings and backfilled pits. (Note: Natural flow across the diapir results in naturally higher TDS.) • The possibility of salt water impacts on down-gradient (offsite) groundwater to the east, as theorized by Whetstone in their 2011 report, and • Mitigation efforts during mining and reclamation to minimize impacts. <p><u>New Comment</u> - TDS levels in both pre-mining and current subsurface flow crossing the diapir are unknown. As such, adjust the current discussion (which states that TDS levels will return to normal pre-mining levels) to reflect the uncertainty of pre- and post-mining conditions.</p>	pnb	

109.4 - Projected impacts on slope stability, erosion control, air quality, public health and safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
7	Page 15-16 Page 15, para 3	<p><u>Previous Comment 89:</u> Discuss the incidences of subsidence and identify mitigation measures to reduce the likelihood of future subsidence. Is pumping brine water for road salt processing from any sumps in the underground salt mine expected to cause subsidence? What final reclamation measures are planned to prevent post-mining impacts of subsidence? Will any permanent water diversion be necessary to prevent alluvial water from entering underground workings after dry stream channel restoration? Reference the Whetstone and other reports as needed.</p> <p><u>Previous Comment 31:</u> Not addressed. Include and summarize findings of the hydrogeology and the rock mechanics reports, including elements of underground mine design, which are reported to prevent significant subsidence in the future.</p> <p><u>Previous Comment 16:</u> Previous comments not yet addressed.</p> <p><u>New Comment</u> - Mitigation of existing and possible future sinkholes should be discussed, including actions to protect public safety and to reduce slopes, consistent with reclamation requirements of R647-4-111.</p>	pnb	

R647-4-110 - Reclamation Plan

110.2 - Reclamation of roads, highwalls, slopes, impoundments, drainages, pits, piles, shafts, adits, etc

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
8	Omission	<u>New Comment</u> - While bond for possible future sinkholes isn't required, reclamation plans for existing and possible future sinkholes are needed.	pnb	
9	Appendix D Page 20	<p><u>Previous Comment 39:</u> Identify in more detail the plans to restrict access to underground mines after mining. Metal gates may be appropriate if the operator arranges for perpetual maintenance. Otherwise, a permanent closure will be needed, for which engineered plans would be appropriate.</p> <p><u>Previous Comment 18:</u> To verify portal closure volumes and costs, portal and backfill dimensions are needed. If the variance is removed for leaving highwalls (to be reduced to 3H:1V), the slope above the portal should be shown with a 3H:1V slope.</p> <p><u>New Comment</u> - Provide clarification and additional detail of portal backfilling and vent shaft plugging, consistent with Appendices D & E.</p>	pnb	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
10	Vent Shaft Closure Plan (Appen. E)	<p><u>Previous Comment 100:</u> ...Discuss plans to reclaim underground ventilation shafts.</p> <p><u>Previous Comment 41:</u> Not addressed. More detailed plans for securely abandoning vent shafts are needed, such as engineered drawings.</p> <p><u>Previous Comment 19:</u> To verify vent shaft closure volumes and costs, shaft dimensions and specific plans are needed. Update the figure to show maximum dimensions and other detail. Alternatively, provide maximum shaft dimensions and a copy of the Division's approved shaft closure drawing for abandoned mines, and calculate the closure cost assuming this closure design.</p> <p><u>New Comment</u> -Replace the rebar shaft closure drawing with a drawing of an appropriate, intended closure.</p>	pnb	

R647-4-113 – Surety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
20	Total Reclamation Cost Summary, Omission	<p><u>Previous Comment 51:</u> Please provide the Division's reclamation cost calculation summary spreadsheet (total.xls) to report the total 2014 reclamation cost, escalated to 2019 dollars, which is used to determine the bond amount.</p> <p><u>Current Comment:</u> Previous comment not yet addressed.</p>	pnb	
21	Omission	<p><u>Previous Comment 11:</u> Other cost information will need to be added, such as ...pipe closure/removal, vent shaft plugging, and the construction of the raised berm for drainage containment.</p> <p><u>Previous Comment 52:</u> Not addressed. Add these costs as line items to the calculation.</p> <p><u>Current Comment:</u> Previous comment not yet addressed.</p>	pnb	
22	Omission	<p><u>Previous Comment 53:</u> Explain the assumption behind the application of major regrading volumes using a dozer and excavator at a ratio of 70/30, respectively.</p> <p><u>Current Comment:</u> Previous comment not yet addressed.</p>	pnb	
23	D9 Dozer Production Sheets	<p><u>Previous Comment 54:</u> Define Major Regrading and Minor Regrading, and the source and method used to determine regrade volumes.</p> <p><u>Current Comment:</u> Previous comment not yet addressed.</p>	pnb	
24	Earthwork Costs, Omission	<p><u>Previous Comment 55:</u> Costs to regrade major volumes appear incomplete. Identify additional major volumes shown on the map, but not included in the table. Major regrading volumes are not specifically identified for OW-01, OW-02, OW-03, OW-04, OW-05, OW-10, OW-16, OW-17, OW-17A, and OW-18. Identify MC-a and MC-b in the table from the Salt Processing area. Major regrading for Area 12 (A12-a) is understated, and removal of the berm alone will be more than 136 cubic yards.</p> <p><u>Current Comment:</u> Previous comment not yet addressed.</p>	pnb	

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
25	Earthwork Costs, Duplicate	<i>Previous Comment 56: It appears that Area 10 or perhaps Area 14 regrading costs have been duplicated on the unnumbered, unnamed cost calculation page with regrading for Areas 11-13. Remove the Area 10 line items from this page and the total direct costs.</i> <u>Current Comment:</u> Previous comment not yet addressed.	pnb	
26	Demolition Costs, Omission	<i>Previous Comment 57: Consistent with 1999 Notice approval documents, Buildings 7-15 and Buildings 16, 17, 22, and 23 need to be demolished and/or removed. Add demolition costs for these buildings, and update the total reclamation cost estimate amount.</i> <u>Current Comment:</u> Previous comment not yet addressed.	pnb	

MAP COMMENTS

To be addressed either by 2019 or during the next amendment, whichever comes first.
The following comments are not changed from the May 2015 review.

R647-4-105 - Maps, Drawings & Photographs

General Map Comments

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
58	All sheets	<i>Previous comment - Please leave a one-half inch border around all sheets, for scanning purposes as was done for SS-01 and RT-01.</i> New comment – Submittal dated April 25, 2016 did not have the maps which were referred to, this comment to remain for the submittal received on May 19, 2016	lah lah	
59	General	Update all applicable maps to be consistent with future plans, such as the proposed office building at the clay mill, the solar panel areas and associated infrastructure on past disturbances, both new and regraded roads (e.g. new haul road north of South Salt Mine), and both recent and ongoing reclamation and disturbance (e.g. Bosshardt mine backfill grading).	pnb	

105.2 - Surface facilities map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
60 (Previous comment 9)	Site Facilities Map	Please provide a map with an aerial photo background, as was submitted previously. <u>Second Review:</u> Not addressed. The most recent aerial photograph will be adequate, as long as the date of the flyover is clear.	pnb	

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
61 (Previous comment 11)	Site Facilities Map, etc.	Identify the current overburden piles with topsoil storage (per 106.5 and 106.6), including topsoil storage piles associated with future mining. Refer to comments for sections 106.5 & 106.6. If no topsoil has been separately stockpiled to this point, note the map accordingly. <u>Second Review:</u> Not addressed. Identify future soil stockpiles associated with future surface mining areas.	pnb	
62 (Previous comment 13)	Site Facilities Map, etc.	Unless they no longer exist, identify additional road segments on the map, as per Comment 14 in the previous review, and revise the reclamation treatments map and bond as needed. Examples observed in aerial photographs include: 1) roads in the area of Trash Pit #4, 2) roads near the retention ponds north of the clay mill, 3) a road north of the unnamed open pit salt mine near the subsidence areas, and 4) roads between the future clay mine and OW-12 northeast from the access road. Other examples may exist. Any onsite, pre-law roads not used for mining activities should be identified as such. <u>Second Review:</u> Not addressed.	pnb	
63 (Previous comment 17)	Site Facilities Map, etc	Aerial photos suggest that the three clay pits at the far northwest end of the disturbance are really one clay pit. Correct as needed. <u>Second Review:</u> Show the regrading of High Yield Clay Mine and other regraded areas.	pnb	
64	Site Facilities Map, etc	Identify the Tamarack Pit as current mining (and any other pits that were identified as future mining are currently being mined).	pnb	
65 (Previous comment 23)	Site Facilities Map, etc	Identify reclaimed areas on this map. <u>Second Review:</u> Not addressed.	pnb	
66 (Previous comment 27)	Site Facilities Detail Map & Most Other Maps	The two tables on the Site Facilities Detail Map incorrectly identify some facilities (Buildings 7-15) as pre-1999, and at least infer that Buildings 7-15 and Buildings 16, 17, 22, and 23 do not need reclamation. Clarify the tables, legend, and facilities on the map to be consistent with an updated reclamation treatments map and the 1999 approval requiring that these buildings be reclaimed.	pnb	
67 (Previous comment 28)	Site Facilities Detail Map	Label storage tanks for brine, fuel, and other potentially deleterious substances. <u>Second Review:</u> Not addressed.	pnb	
68 (Previous comment 27)	Site Facilities Detail Map	Identify the building just north of the actual north mill building below the hill, and the scale. <u>Second Review:</u> Not addressed. See the aerial photographs.	pnb	
69	Site Facilities Detail Map	The 2014 aerial photographs show the equipment storage area as being larger than is drawn on the map. Correct the map as needed.	pnb	

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
70 (Previous comment 29)	Page 4	Identify by name and number the other maps included with this Notice. <u>Second Review:</u> Not addressed. Usually this is done in a table of contents.	pnb	
71 (Previous comment 32)	Hydro Map, etc	Identify what has been described as a spring in the reclamation area above the salt water and runoff retention pond. <u>Second Review:</u> Not addressed.	pnb	
72 (Previous comment 33)	Hydro Map, etc	Per comment 23 of the previous review, identify ... the retention pond in the drainage northwest of the unnamed northwest clay pit, ...the pond northeast of the mill below the two drainages near the property line, and any other ponds not already shown. <u>Second Review:</u> Not fully addressed. Deleted portions were addressed.	pnb	
73 (Previous comment 35)	Hydro Map, etc	Per comment 27 of the previous review, identify ...less visible drainage paths (such as a path to the northern retention ponds by the property boundary)... <u>Second Review:</u> Not completely addressed. Identify the defined flow path visible on aerial photos that enters the southern regraded area from the southwest.	pnb	
74	Hydro Map	Add the salt structure elevation lines to the legend, with any other that might be cut off.	pnb	
75 (Previous comment 36)	Hydro Detail Map	Add a legend. <u>Second Review:</u> Not addressed. Show salt structure elevation lines in the legend.	pnb	
76	Reclamation Treatment Map	Major regrading volumes are not specifically identified for OW-01, OW-02, OW-03, OW-04, OW-05, OW-10, OW-16, OW-17, OW-17A, OW-18. Update the table. The calculations will also need to be updated accordingly. Identify MC-a and MC-b in the table from the Salt Processing area.	pnb	
77	Reclamation Treatment Map	The 1999 Notice approval documents identify only the following facilities as having post-mining land use and not requiring reclamation (demolition and removal): <ol style="list-style-type: none"> 1) the maintenance shop (diesel equipment shop, #18), 2) office/warehouse facilities (salt warehouse/office, #19), 3) clay mill (clay mill/warehouse building, #20), 4) the salt mill (mill enclosure, #21), including secondary crushers, 5) the vehicles storage (pre-1999 parking lot, not numbered), 6) salt bulk storage (pre-1999, not numbered), 7) truck scales (pre-1999, not numbered), and 8) main roads to facilities with a post-mining land use. This Reclamation Treatments Map does not indicate that the other Buildings 7-17, 22, and 23 need reclamation. Correct the map and legend, consistent with the 1999 approval.	pnb	
78 (Previous Comment 37)	Reclamation Treatments Map	Referencing the 1999 Treatments map, OW-03 (north of the north salt mine) appears to be post-law dumps or waste salt, and OW-10 and OW-11 appear to be pre-law dumps. Unless this is a mistake, correct the new map to show OW-3 as requiring reclamation. <u>Second Review:</u> Not addressed. OW-03 is prelaw.	pnb	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
79 (Previous Comment 44)	Reclamation Treatments Map	Please address comment 40 from the previous review: "...The Notice text should discuss berms for drainage control (including reclamation), and maps should be consistent with the text. (105.3.17)" <u>Second Review:</u> Not completely addressed. Show important reclamation berms.	pnb	
80 (Previous Comment 45)	Revegetation Treatment Map	In the map legend, explain each of the revegetation treatment types (topsoil amount, seeding, type of surface roughening, addition of composted manure, flooding, clay/salt areas). <u>Second Review:</u> Not completely addressed. Indicate which treatment types are for salt, salt waste, clay, clay waste, etc.	pnb	
81 (Previous Comment 48)	Revegetation Treatment Map	In the legend, the "Previously Reclaimed" category should report ... that you are waiting for vegetation to grow. <u>Second Review:</u> Partly addressed. Note that the Legend requires six inches of soil as well as composted manure placed to be placed on "Previously Reclaimed" areas. Under the current Notice, multiple regraded clay areas would need to be seeded, but not have soil placed on them. Correct the inconsistency. Indicate whether the areas have been seeded.	pnb	
82	Cross Sections	The cross-sections indicate that the pits previously granted variances will be backfilled and/or graded down to shallower slopes. However, page 17 (section 110.2) indicates that highwalls at the entrances of north and south will not be backfilled. The outdated plan identifies backfilling to reduce slopes of salt mines, except in the immediate area of the portals where a variance was approved. Please modify the text and maps for consistency.	pnb	
83	GE-01	<i>As per rule R647-4-105.3.16, include structural geologic information on GE-01.</i> New comment – Submittal dated April 25, 2016 did not have the maps which were referred to, this comment to remain for the submittal received on May 19, 2016	lah	
84	GE-01	<i>Change title in legend from Soil Classification to Geologic Legend.</i> New comment – Submittal dated April 25, 2016 did not have the maps which were referred to, this comment to remain for the submittal received on May 19, 2016	lah lah	
85	Omission	<i>As per rules R647-4-105.3.16 and R647-4-105.3.18, include geologic cross sections; include both a parallel and a perpendicular cross section as needed.</i> New comment – Submittal dated April 25, 2016 did not have the maps which were referred to, this comment to remain for the submittal received on May 19, 2016	lah lah	
86	HD-03	Show the retention pond south of the mill near the solar panels.	pnb	
87	HD	Identify any areas with workings less than 60 feet in depth below the surface, including pit bottoms. Reference the rock mechanics report for crown pillar stability.	pnb	
88	Omission	<i>Include a note on CS-01, CS-02 and CS-03 that the locations of Section A thru Q for location of cross sections on plan view.</i> New comment – Submittal dated April 25, 2016 did not have the maps which were referred to, this comment to remain for the submittal received on May 19, 2016	lah lah	

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
89	CS-01, CS-02, CS-03	<i>Label regraded slope angles with maximum slope angles, i.e. "2H:1V max," or add a note to each sheet that states, "Regraded slope angle not to exceed 2H:1V."</i> New comment – Submittal dated April 25, 2016 did not have the maps which were referred to, this comment to remain for the submittal received on May 19, 2016	lah lah	
90	Omission	Show the past and future locations of buried waste salt, since it is considered deleterious to plant growth.	pnb	

105.5 – Underground and Surface Mine Development Maps

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
91 (Previous Comment 50)	Underground	Show the Bosshard Mine underground workings, including in the area of the closed vent shaft and near the mill. Indicate the elevations of the workings, if possible.	pnb	